



EG&G ROCKY FLATS, INC.
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

August 4, 1993

93-RF-9525

A. H. Pauole
Acting Manager
DOE, RFO

Attn: D. Grosek

UPDATED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) CONTINGENCY PLAN
IMPLEMENTATION REPORT (CPIR) NO. 93-007 - TGH-472-93

This report was previously submitted to your office on August 2, 1993. The report has been updated to address additional comments received from both the Department of Energy (DOE) and EG&G Rocky Flats, Inc. personnel. The report outlines the events and response actions associated with a spill of approximately 4,700 gallons of hazardous waste from the ancillary equipment associated with the Temporary Modular Tanks and Building 910 Treatment System. These tanks store liquid that is collected by the Solar Evaporation Pond Interceptor Trench System (ITS). The tanks, treatment system, and ancillary equipment are a part of RCRA Unit No. 38. The RCRA Contingency Plan was implemented as a precautionary measure due to the possibility of a release of RCRA regulated waste through an unlined concrete sump and the released material was not completely cleaned up within 24 hours.

This report was developed to meet the RCRA Contingency Plan reporting requirements of CCR 1007-3 Section 265.56(j) as well as the notification requirements of 6 CCR 1007-3 Section 265.56(i) and the tank system release reporting requirements of CCR 1007-3 Section 265.196(d). This report should be delivered to CDH no later than August 4, 1993, as required by 6 CCR 1007-3 Section 265.56(j).

If you have any questions regarding this subject, please contact either R. W. Boyle at 966-6926 or M. L. Johnson at 966-5033.

A handwritten signature in dark ink, appearing to read "T. G. Hedahl".

T. G. Hedahl, Associate General Manager
Environmental and Waste Management

MLJ:kam

Orig. and 1 cc - A. H. Pauole

Enclosures:
As Stated (2)

ADMIN RECORD

ADMIN RECORD

DOCUMENT CLASSIFICATION
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A-DU09-000205

RCRA CONTINGENCY PLAN
IMPLEMENTATION REPORT No. 93-007
ROCKY FLATS PLANT
EPA ID NUMBER CO7890010526

This report is made in compliance with the requirements of 6 CCR 1007-3, Parts 264.56 (j) and 265.56 (j) for a written report within 15 days of the implementation of the RCRA Contingency Plan. The requirements for this are given below and will be addressed in the order listed, excerpted from 6 CCR 1007-3, Parts 264.56 and 265.56:

"(j)...Within 15 days after the incident, he must submit a written report on the incident to the department. The report must include:

- (1) Name, address, and telephone number of the owner or operator
- (2) Name, address, and telephone number of the facility
- (3) Date, time, and type of incident (fire, explosion)
- (4) Name and quantity of material(s) involved
- (5) The extent of injuries, if any
- (6) An assessment of actual or potential hazards to human health and the environment, where this is applicable; and
- (7) Estimated quantity and disposition of recovered material resulted from the incident."

In addition, information is also being included in this report to address the reporting and notification requirements of 6 CCR 1007-3 Section 265.56(i) and CCR 1007-3 Section 265.196(d):

- (8) Notification requirements of 6 CCR 1007-3 Section 265.56(i)
- (9) Tank system release reporting requirements of CCR 1007-3 Section 265.196(d)

(1) NAME, ADDRESS AND TELEPHONE NUMBER OF THE OWNER OF THE FACILITY:

United States Department of Energy
Rocky Flats Plant
Post Office Box 928
Golden, Colorado 80402
(303) 966-2025

Facility Contact:
A. H. Pauole, Manager

(2) NAME, ADDRESS AND TELEPHONE NUMBER OF THE FACILITY:

U.S. Department of Energy
Rock Flats Plant
Post Office Box 928
Golden, Colorado 80402
(303) 966-2025

(3) DATE, TIME, AND TYPE OF INCIDENT:

A. Summary:

A hazardous waste incident occurred on July 20, 1993. The incident involved the Interceptor Trench (ITS) and ancillary equipment associated with the Modular Tanks and Building 910 Treatment System (RCRA Unit No. 38). The incident involved a failure of a primary pipe and secondary containment system and resulted in a spill/leak of hazardous waste. The incident was discovered at approximately 1:30 p.m. Hazardous waste was being pumped from the Modular Tanks to the Building 910 treatment facility when a primary transfer pipe failed, causing waste to leak/ spill into the secondary containment pipe. The released material filled the secondary containment pipe causing hazardous waste to spill from the secondary containment pipe into the modular tank pumphouse secondary containment. In addition, the excessive amount of waste in the transfer piping secondary containment caused a hose connection on the secondary containment pipe to fail and resulted in a leak of hazardous waste into the ITS sump.

The contingency plan was implemented on July 20, 1993 as a precautionary measure, due to the fact the concrete sump (ITS sump) that received the hazardous waste was unlined. There is no evidence to suggest that the waste leaked from the sump; but, as stated above the contingency plan was implemented as a precautionary measure. In addition, the contingency plan was implemented because some of the released material was not removed from the secondary containment of the transfer piping within 24 hours.

B. System Description:

The involved system is a collection, transport, storage, and treatment system used to manage surface/ ground water at the northeast portion of the RFP site. The ITS and its predecessor trench systems were installed to collect and return ground water to the Solar Ponds for treatment to remove nitrates (reference Historical Release Report for the Rocky Flats Plant, June, 1992). The nitrate level continues to exceed applicable stream standards for Walnut Creek.

The system is an Interim Status unit, permitted through the mechanism of the Interim Measure/Interim Remedial Action (IM/IRA). (The IM/IRA Decision Document for the Solar Evaporation Ponds Operable Unit No. 4, April, 1992 states on page 1-1 "this IM/IRA is a mechanism for permitting the use of the proposed treatment (i.e., use of surge tanks and flash evaporators) as directed by EPA and CDH." Subsequently, at CDH request (Baughman to Hartman, September 2, 1992), a revised Part A permit application was submitted which covers the tanks and flash evaporators.)

The system includes a) Interceptor Trench System (ITS), b) three (3) Modular Storage Tanks, c) Building 910 Treatment System, and all related ancillary equipment. Figure 1 is a system layout and Figure 2 is a schematic of the transfer systems. The following is a description of the system components:

a) Interceptor Trench System (ITS):

- 1) The ITS system includes an extensive French Drain system of perforated pipes that collects and transports surface and ground water to the ITS sump (reference Figure 2 - item a1).

- 2) The ITS sump is an underground, unlined, concrete vault that stores the surface and ground water (reference Figure 2 - item a2). The ITS sump is not secondarily contained.
- 3) A small building housing two pumps is located on top of the sump (reference Figure 2 - item a3). The sump pumps transfer the surface and ground water collected in the sump several hundred feet to the modular storage tanks. In accordance with 6 CCR 1007-3, the pumping operation is considered a waste generation point. At this point, the generated waste (pumped surface/ ground water) is characterized as RCRA hazardous waste.

NOTE: The ITS pumphouse is the physical low point of the transfer systems for both the pipeline from the ITS sump to the Modular Tanks (reference Figure 2 - item a4) and the pipeline from the Modular Tanks pumphouse to Building 910 (reference Figure 2 - item b4 and b5).

- 4) The RCRA hazardous waste (pumped surface/ ground water) is pumped from the ITS sump pump, through a 3-inch secondarily contained, buried pipe, several hundred feet to one of 3 modular storage tanks (reference Figure 2 - item a4).

b) Modular Storage Tanks

- 1) The hazardous waste (pumped surface/ ground water) is stored in three modular storage tanks (reference Figure 2 - item b1) until it is pumped to the Building 910 treatment system .
- 2) A secondarily contained, buried pipe (reference Figure 2 - item b2) transports waste from the modular tanks to the modular storage tank pumphouse (reference Figure 2 - item b3).
- 3) A pumphouse (reference Figure 2 - item b3) is located several feet from the storage tanks and contains two pumps that transfer the waste from the modular storage tanks to the Building 910 treatment system. The pumphouse includes a epoxy-coated steel secondary containment with an automatic feed cutoff that shuts down the pumps when a high level is reached in the pumphouse secondary containment. The leak detection system includes a local and remote alarm. The secondary containment for the transfer pipe from the tanks to the pumps is open ended (daylights) in the modular tank pumphouse.
- 4) The waste is pumped through 2-inch secondarily contained, buried pipe (reference Figure 2 - items b4 and b5) several hundred feet from the modular tank pumphouse through the ITS sump (reference Figure 2 - item a2) and to the Building 910 treatment system (reference Figure 2 - item c). The primary containment pipe is continuous and does not open to or stop at the ITS sump. The secondary containment piping is divided into two sections to allow segregation and identification if a leak should occur. The partition between the two section of secondary containment is located within the ITS sump. The automatic leak detection system for these two sections of secondary containment was not operational; therefore, daily inspections were being conducted until the automatic system could be made operational. The pipeline

from the modular tank pumphouse to Building 910 (reference Figure 2 - item b4) shares a common trench with the pipeline from the ITS sump to the modular storage tank (reference Figure 2 - item a4).

- 5) From the ITS sump, the continuous pipe (and secondary containment around the pipe) goes to the building 910 Treatment System (reference Figure 2 - item c). From ITS sump (reference Figure 2 - item a2), the transfer pipe continues by itself to the Building 910 treatment facility (reference Figure 2 - item c).

c) Building 910 Treatment Facility

- 1) The Building 910 treatment facility (reference Figure 2 - item c) includes storage tanks and three evaporative units that treats the waste (pumped surface/ ground water).

C. Description of Incident and Immediate Response:

Hazardous waste from the Temporary Modular Tanks, which stores liquid collected by the Solar Evaporation Ponds Interceptor Trench System (ITS), was being pumped to Building 910 for treatment in the Acceptance Phase of the building's operation. At approximately 10:30 a.m. on July 20, 1993, operators conducted the daily inspection of the tank system which includes the ITS sump and Modular Tank pumphouse. No problems or unusual conditions were identified.

Prior to 1:00 p.m. on July 20, 1993, a leak occurred in the primary containment piping (reference Figure 2 - item (b4)) located between the modular tanks and the ITS sump (reference Figure 2 - item a2) which allowed waste to leak into the secondary containment. Due to the location of the leak in the pipeline, the hazardous waste that leaked into the secondary containment overflowed back into the Modular Tank pumphouse (reference Figure 2 - item b3) and also gravity-drained through a failed hose connection on the secondary containment piping (reference Figure 2 - item a2). The failed hose connection is located within the ITS sump. The ITS sump is equipped with an automatic level controls and the material that spilled into the ITS sump was pumped back into the Modular Tanks. The hazardous waste that overflowed into the Modular Tank pumphouse was fully contained in the pumphouse secondary containment. When the liquid level in the pumphouse secondary containment rose, the leak detection system was activated, the local alarm was activated, and the pumps were automatically shut down. The remote alarm via telemetry to Building 374 did not, however, function. Problems had occurred previously and this alarm was not reliable; therefore, it had not been considered operational and compensatory measures were in place to perform daily checks of the local alarm panel. This deficiency had been identified as an open item to be corrected.

At approximately 1:00 p.m., Operators in Building 910 were alerted to a problem when feed from the Modular Tanks ceased flowing to Building 910. The operators investigated (at approximately 1:30 p.m.) and discovered that the pump had automatically shut-down due to liquid on the floor of the pumphouse. Liquid was apparently still siphoning out through the pump, therefore, the operators immediately stopped the flow of hazardous waste by closing manual

operators immediately stopped the flow of hazardous waste by closing manual valves.

D. Corrective Action:

Applicable requirements of 6 CCR 1007-3 Part 264.196 will be met prior to system restart.

- 1) In accordance with 6 CCR 1007-3 Part 264.196 (a) - Cessation of Use: The pump automatically shut-down when the liquid level in the pumphouse reached the level sensor. Operators observed some siphoning of liquid through the pump, and immediately closed the manual valves to isolate the line and stop the flow of hazardous waste. While verifying the cause of the problem, the pump was operated for a short duration (less than one minute) to confirm the location of the leak. The pumps and valves were locked out/tagged out at 9:30 p.m. on July 20 to prevent any addition of hazardous waste to the transfer pipe.

NOTE: The ITS is continuing to collect ground water into the sump, and that ground water was pumped to the Modular Tanks as needed. These sump operations are routine, automatic, and continuous.

- 2) In accordance with 6 CCR 1007-3 Part 264.196 (b)(2) - Removal of hazardous waste from the secondary containment:
 - a) On July 20, the hazardous waste that had collected in the secondary containment system of the pumphouse was pumped into a liquid waste dumpster and trucked to Building 374 for treatment.
 - b) Hazardous waste continued to drain from the hose connection on the secondary containment into the ITS sump for several hours: the sump was checked several times after the problem was initially discovered at about 1:30 p.m. on July 20; and drainage from the secondary containment had ceased by 4:30 p.m. on July 20 when the transfer piping secondary containment drained to the low point of the line in the ITS sump. The material that drained into the sump was automatically pumped back into the Modular Tank system, and was removed from the sump by 5:00 p.m. on July 20.
 - c) Some hazardous waste, however, remained in the annulus of the secondarily contained piping below the elevation of the disconnected hose connection. Upon completion of a work package (including a confined space permit), approximately 2 to 3 gallons of hazardous waste was drained from the annulus on August 2, 1993.
- 3) In accordance with 6 CCR 1007-3 Part 264.196 (c) - Containment of visible release to the environment: There were no visible releases to the environment. Since the ITS sump is below ground, the sump cannot be visually inspected to assure that no hazardous waste has escaped to subsurface soil or water. Due to the fact the concrete sump (ITS sump) that received the hazardous waste was unlined, the contingency plan

was implemented as a precautionary measure. There is no evidence to suggest that the waste leaked from the sump.

- 4) In accordance with 6 CCR 1007-3 Part 264.196 (d)- Notification and reports: The CDH and EPA were notified of this occurrence on July 21, 1993 as a precautionary measure due to the possibility of a release to the environment of greater than one pound of hazardous waste from the unlined concrete sump. Submission of this RCRA Contingency Implementation Report satisfies 6 CCR 1007-3 Part 264.196 (d) report requirements.
- 5) In accordance with 6 CCR 1007-3 Part 264.196 (e)(3) - Repair of the affected system: The system will be returned to service as soon as the necessary repairs are completed. The following actions will be completed prior to returning the system to operation:
 - Repair the primary transfer line,
 - Repair or modify the portion of the secondary containment of the transfer line (the hose connection) within the ITS sump that failed and resulted in the leak of hazardous waste from the secondary containment system, and
 - Retest the primary line following the repair.
- 6) In accordance with 6 CCR 1007-3 Part 264.196 (f)- Certification of major repairs: The repair of the system is not expected to be extensive (per §265.196(f), examples of extensive repairs are installation of an internal liner or repair of a ruptured vessel); therefore the certification by an independent, qualified, registered, professional engineer may not be required prior to resuming operations.

E. Operational Status:

The ancillary equipment associated with the spill is currently shut down and locked out of service until the repairs to the leak in the primary and secondary systems are repaired. When the system is returned to operation, operation will be in compliance with RCRA.

(4) MATERIAL INVOLVED:

As specified in 6 CCR 1007-3, ground water is not a solid waste and the "mixing" and "derived from" rules are not operable in this system. The ITS system, including the French Drain system, are not hazardous waste systems and the surface/ ground water in these systems is not characterized as hazardous waste (reference Figure 2 - item a1). The surface/ ground water stored in the ITS is not characterized as hazardous waste (reference Figure 2 - item a2).

The released material is, however, RCRA F-listed hazardous waste. In accordance with 6 CCR 1007-3, the pumping operation at the ITS sump is considered a waste generation point (reference Figure 2 - item a3). At this

point (reference Figure 2 - item a3), the surface/ ground water is recharacterized as RCRA F Listed hazardous waste because the "contained in" rule is operable. The applicable EPA waste codes are F001, F002, F003, F005, F006 F007, and F009.

In accordance with 6 CCR 1007-3, the waste remains a listed hazardous waste (F001, F002, F003, F005, F006 F007, and F009) as it moves through all other parts of the system.

(5) EXTENT OF INJURIES:

No injuries occurred.

(6) THREAT TO HUMAN HEALTH OR THE ENVIRONMENT:

The spill/leak did not result in an additional threat to human health or the environment.

The Modular Tank pumphouse fully contained the hazardous waste spilled into the pumphouse secondary containment.

The spilled hazardous waste originated in the ITS sump. There is no physical or chemical difference between the spilled hazardous waste and the surface/ground water collected in the ITS sump. The only difference in the material is that one is classified as hazardous waste and the other is classified as surface/ground water. Due to the fact the concrete sump (ITS sump) that received the hazardous waste was unlined, the contingency plan was implemented as a precautionary measure. There is no evidence to suggest that the waste leaked from the sump.

Approximately 3 to 4 million gallons of ITS water is collected in the sump each year, and the amount of the spill represents a very small increase (less than 1%) in the volume handled in the sump. The ITS system was not designed to collect all of the ground water flowing under the ponds at the depth of the trench system and any material that leaked from the ITS sump would rejoin that ground water that currently flows from the sump.

(7) QUANTITY AND DISPOSITION:

A. Quantity:

Approximately 4,700 gallons of hazardous waste were leaked from the pipeline secondary containment. The volume was estimated as follows:

- 1) Approximately 300 gallons of hazardous waste were spilled to the Modular Tank pumphouse secondary containment, based on the known area of the floor and the observed depth of four inches.
- 2) Approximately 4,400 gallons of hazardous waste were spilled to the ITS sump. Hazardous waste from the sump was pumped to the east Modular Tank, and operators observed that the level in the tank rose less than

one inch. The tank holds about 6000 gallons per inch of height. The installed flow totalizer in the ITS pumphouse indicated approximately 5,000 gallons had been pumped from the sump to the Modular Tank between 10:30 a.m. and 4:30 p.m. on July 20. Inflow from the trench system to the sump would have contributed approximately 600 gallons during this period. Thus, the estimate of 4,400 gallons was derived from this data. The hazardous waste was recovered from the sump by about 5:00 p.m. on July 20. In addition, the volume released was estimated based on a mathematical equation which indicated that the volume released was about 3,000 gallons.

The original notification to CDH and EPA had estimated that 6300 gallons had leaked from the secondary containment system. The quantity has been revised based on the above facts.

It is estimated that less than 0.01 pound of hazardous waste constituents were leaked into the secondary containment system. This estimation is based on the a spill of 4,700 gallons (about 40,000 pounds) of hazardous waste and a hazardous waste constituent concentration of 50 ppb. The contaminant concentration level is based on historical data for the ITS waste stream.

B. Disposition:

The hazardous waste that overflowed into the Modular Tank pumphouse was pumped into a portable tank and trucked to Building 374 for treatment. The wipes used in the final cleanup of the pumphouse were designated as hazardous waste (mixture rule), and placed into drums and are properly stored in a RCRA satellite accumulation area in Building 910.

The hazardous waste that spilled into the ITS sump was recovered into the Modular Tanks. This recovery represents the normal, automatic functioning of the system. No change to the characteristics of the hazardous waste occurred, and the hazardous waste will be treated in existing facilities.

(8) RESUMPTION OF OPERATIONS NOTIFICATION

Based on the requirements of 6 CCR 1007-3 Part 264.56 (i), the owner or operator must notify CDH that the facility is in compliance with 6 CCR 1007-3 Part 264.56 (h)) prior to resuming operations. The system is in compliance with the requirements outlined in 6 CCR 1007-3 Part 265.56(h)(1) in that all of the released material has been treated or stored. The system is also in compliance with the requirements outlined in 6 CCR 1007-3 Part 265.56(h)(2) in that only incidental release supplies used to respond to this incident were from routine operations supplies and no incidental release response supplies were used. In addition, no equipment specifically listed in the contingency plan were used to respond to this incident.

(9) TANK RELEASE REPORTING REQUIREMENTS

Based on the requirements of 6 CCR 1007-3 Part 264.196 (d), a report containing the following information must be submitted to CDH.

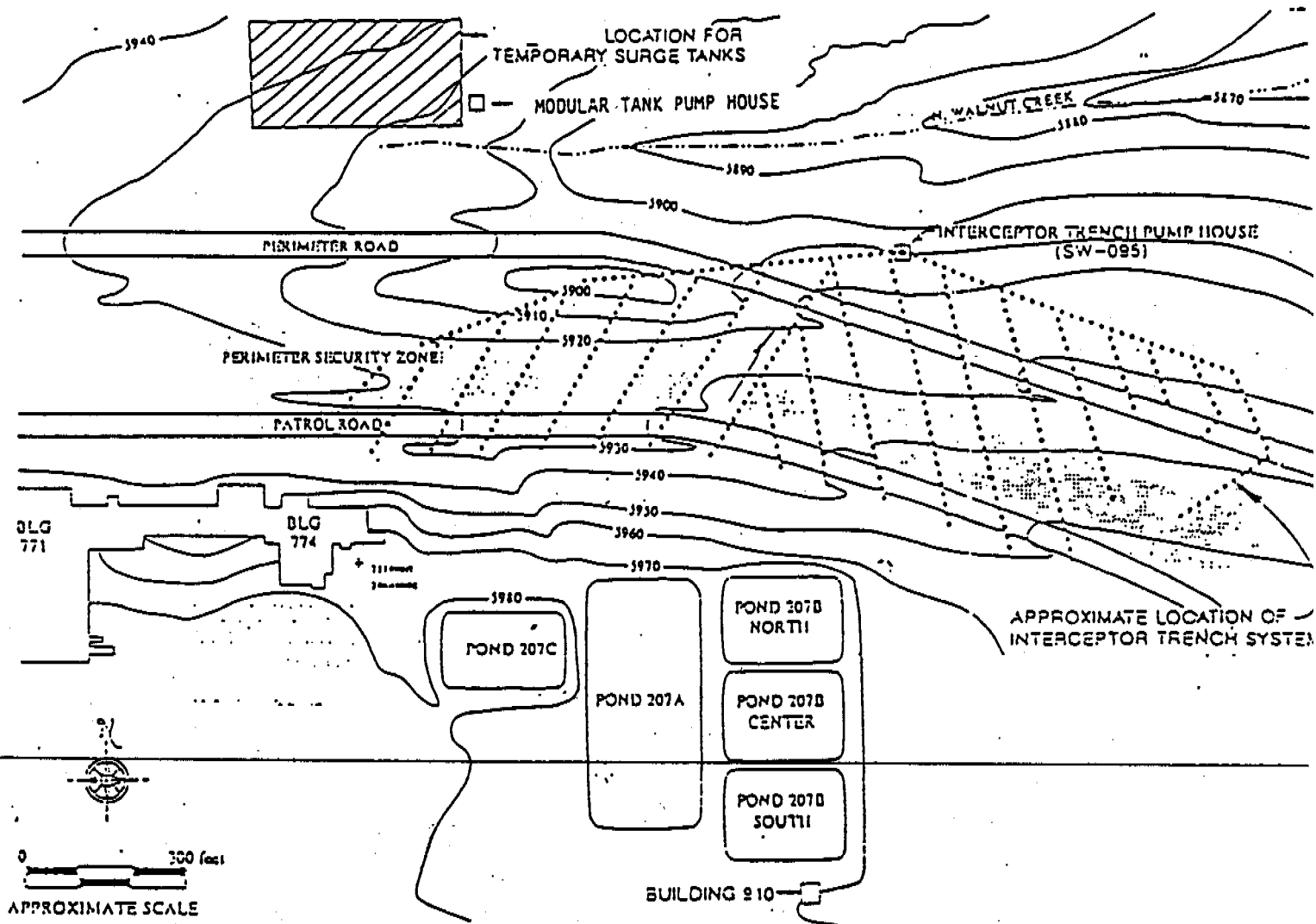
The route of migration of such a release would be into the ground water that flows to the Walnut Creek basin.

Characteristics of the surrounding soil are available in the IM/IRA.

No additional monitoring will be initiated in response to this specific incident because: The area of the ITS already experiences ground water flow from under the ponds, the Operable Unit will be remediated as part of the Interagency Agreement (IAG), and retention basins are operated in the Walnut Creek drainage that lead to a NPDES discharge point in Walnut Creek.

Characteristics of downgradient waters and populations are available in the IM/IRA.

A description of the response action taken or planned are included in section 3 of this report.



Solar Evaporation Pond Area

FIGURE 1

ITS System

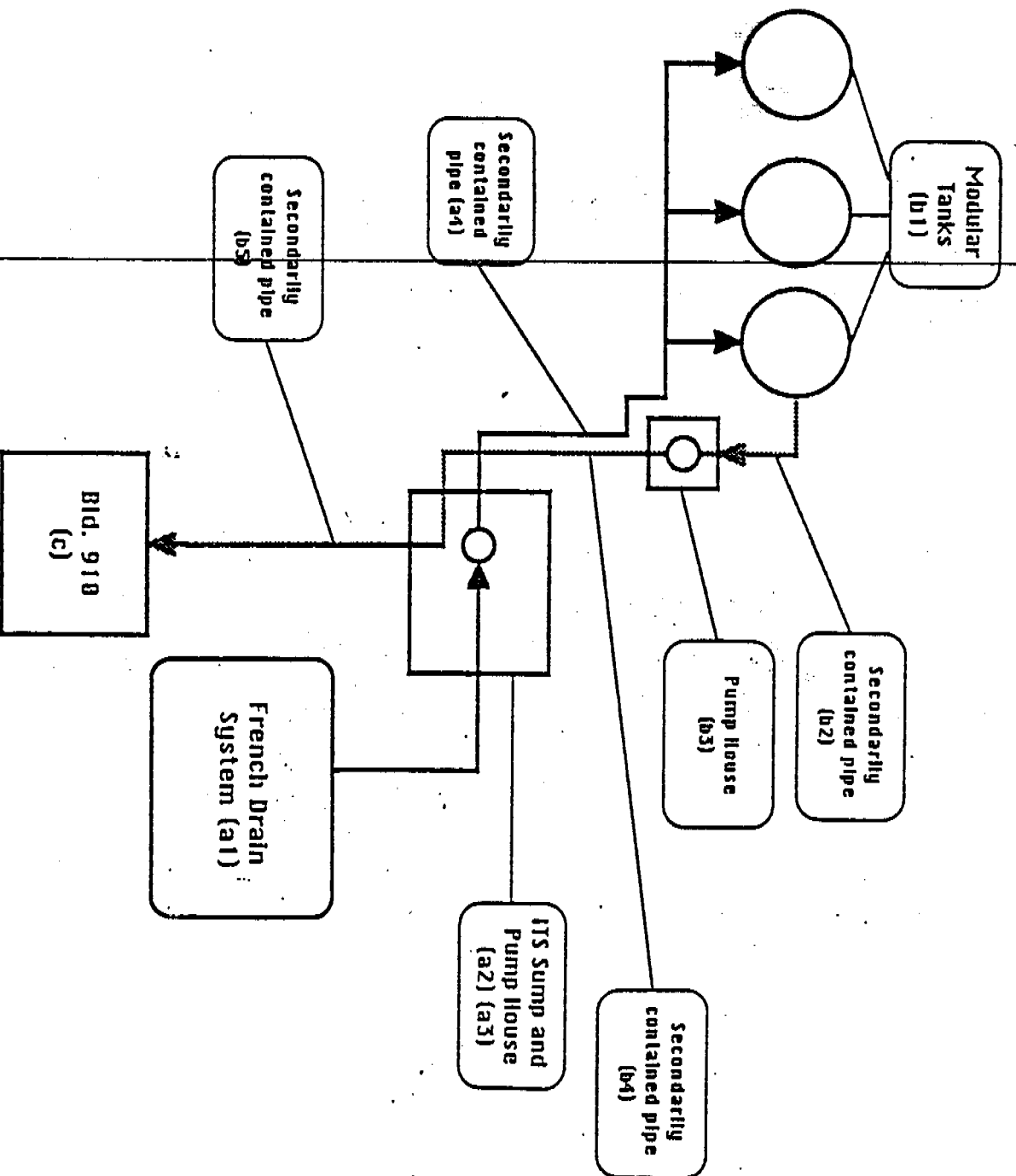


FIGURE 2